

## Johnson, Sabrina O

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**From:** Patrick Kardish <PKardish@jonesedmunds.com>  
**Sent:** Tuesday, November 19, 2019 5:09 PM  
**To:** Morgan, Steve  
**Cc:** Henry.Norris@citrusbocc.com; Troy Hays  
**Subject:** 2019.11.19\_RPT\_Citrus\_WACS 39859\_19Q4 Gas Mon  
**Attachments:** 2019.11.19\_RPT\_Citrus\_WACS 39859\_19Q4 Gas Mon.pdf

Good Evening Mr. Morgan,

Attached is the Fourth Quarter 2019 Landfill Gas Monitoring Report for the Citrus County Central Landfill (WACS 39859).

Please let us know if you have any problems opening the attachment or have questions or comments concerning the report.

Thank you,

**Patrick Kardish**  
Environmental Data Analyst



p. 352.377.5821 x. 1411

[JONESEDMUNDS.COM](http://JONESEDMUNDS.COM)

730 NE Waldo Road, Gainesville, FL 32641



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November 19, 2019

Mr. Steve Morgan  
Solid Waste Section  
Department of Environmental Protection  
13051 N Telecom Pkwy  
Temple Terrace, FL 33637-0926

RE: Citrus County Central Landfill  
Landfill Gas Monitoring Results – Fourth Quarter 2019  
FDEP Permit No.: 21375-025-SO-01  
Jones Edmunds Project Number: 03860-069-01

Dear Mr. Morgan:

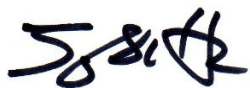
Enclosed are the Fourth Quarter 2019 landfill gas monitoring results for the Citrus County Central Landfill conducted on October 21 and 22, 2019. The calibration log is also enclosed with this letter.

There were no detections of Methane in any of the landfill gas monitoring probes at any depths or in any of the on-site structures. Based on these sampling results from the probes at varying depths, Methane does not exceed 100% of the LEL at the compliance boundary and the site is in compliance with the landfill gas migration rule.

The County continues to measure landfill gas concentration in the groundwater monitoring wells. Methane was at or above 100% of the LEL in groundwater monitoring wells MW-1R, MW-5, MW-6 MW-7, MW-16, and MW-20.

The results from the measurements conducted in the new landfill gas monitoring probes along with the existing probes retrofitted with tubing installed to varying depths indicate that the site is in compliance with the landfill gas migration rules. If you have any questions regarding this information, please contact me at (352) 377-5821.

Sincerely,



Troy D. Hays, PG  
Sr. Manager/Vice President  
730 NE Waldo Road  
Gainesville, FL 32618

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xc: Henry Norris, Citrus County

**LANDFILL GAS MONITORING RESULTS  
CITRUS COUNTY CENTRAL LANDFILL**

**Fourth Quarter 2019**

**General Data**

Date:	10/21/19 & 10/22/19	Sampler:	Steve Messick
Time:	09:00 on 10/21/19 & 08:30 on 10/22/19	Sky Conditions:	Cloudy, Wind < 3 mph on 10/21/19 & Cloudy - Overcast, Wind < 3 mph on 10/22/19
Air Temperature (deg C):	22° on 10/21/19 & 26° on 10/22/19	Measuring Device:	Eagle RKI (SN E084039)

**Sampling Data**

Station I.D.	Date Sampled	Time Sampled	Depth of Intake (Feet)	O2 %Volume	CO2 %Volume	Methane		Station Type
						Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	
GP-1	10/22/2019	10:20	20	17.8	2.4	0.0	-	Gas Well
GP-1	10/22/2019	10:22	40	17.1	3.2	0.0	-	Gas Well
GP-2	10/22/2019	9:56	20	19.9	1.2	0.0	-	Gas Well
GP-2	10/22/2019	9:58	40	16.8	4.8	0.0	-	Gas Well
GP-3	10/22/2019	9:47	20	19.6	1.2	0.0	-	Gas Well
GP-3	10/22/2019	9:49	40	19.2	1.2	0.0	-	Gas Well
GP-4	10/21/2019	15:49	20	17.4	3.6	0.0	-	Gas Well
GP-4	10/21/2019	15:51	40	16.3	4.4	0.0	-	Gas Well
GP-5	10/21/2019	15:43	20	16.7	3.8	0.0	-	Gas Well
GP-5	10/21/2019	15:45	40	16.5	4.0	0.0	-	Gas Well
GP-6	10/21/2019	15:38	20	17.9	3.0	0.0	-	Gas Well
GP-6	10/21/2019	15:40	40	17.7	3.0	0.0	-	Gas Well
GP-7	10/21/2019	15:33	20	18.6	2.4	0.0	-	Gas Well
GP-7	10/21/2019	15:35	40	18.5	2.4	0.0	-	Gas Well
GP-8	10/21/2019	15:28	20	17.4	2.0	0.0	-	Gas Well
GP-8	10/21/2019	15:30	40	16.3	2.4	0.0	-	Gas Well
GP-9	10/21/2019	15:23	20	18.9	2.0	0.0	-	Gas Well
GP-9	10/21/2019	15:25	40	18.6	2.2	0.0	-	Gas Well
GP-10	10/21/2019	15:15	20	12.1	7.6	0.0	-	Gas Well
GP-10	10/21/2019	15:17	40	11.6	8.0	0.0	-	Gas Well
GP-11	10/21/2019	15:07	20	18.6	1.6	0.0	-	Gas Well
GP-11	10/21/2019	15:09	40	16.3	2.0	0.0	-	Gas Well
GP-12	10/21/2019	14:10	25	19.2	1.8	0.0	-	Gas Well
GP-12	10/21/2019	14:12	50	19.2	1.8	0.0	-	Gas Well
GP-12	10/21/2019	14:14	75	19.1	1.8	0.0	-	Gas Well
GP-13	10/21/2019	14:00	25	17.9	1.8	0.0	-	Gas Well
GP-13	10/21/2019	14:02	50	17.6	1.8	0.0	-	Gas Well
GP-13	10/21/2019	14:04	75	17.3	2.0	0.0	-	Gas Well
GP-14	10/21/2019	13:49	25	19.2	1.2	0.0	-	Gas Well
GP-14	10/21/2019	13:52	50	19.0	1.2	0.0	-	Gas Well
GP-14	10/21/2019	13:54	75	18.9	1.2	0.0	-	Gas Well
GP-15	10/21/2019	13:40	25	19.9	1.4	0.0	-	Gas Well
GP-15	10/21/2019	13:42	50	19.9	1.4	0.0	-	Gas Well
GP-15	10/21/2019	13:44	75	20.1	1.2	0.0	-	Gas Well
GP-16	10/21/2019	16:06	25	18.9	1.6	0.0	-	Gas Well
GP-16	10/21/2019	16:08	50	18.9	1.6	0.0	-	Gas Well
GP-16	10/21/2019	16:10	75	18.9	1.4	0.0	-	Gas Well

**LANDFILL GAS MONITORING RESULTS  
CITRUS COUNTY CENTRAL LANDFILL**

**Fourth Quarter 2019**

**General Data**

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Time:	09:00 on 10/21/19 & 08:30 on 10/22/19	Sky Conditions:	Cloudy, Wind < 3 mph on 10/21/19 & Cloudy - Overcast, Wind < 3 mph on 10/22/19
Air Temperature (deg C):	22° on 10/21/19 & 26° on 10/22/19	Measuring Device:	Eagle RKI (SN E084039)

**Sampling Data**

Station I.D.	Date Sampled	Time Sampled	Depth of Intake (Feet)	O2 %Volume	CO2 %Volume	Methane		Station Type
						Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	
GP-17	10/21/2019	16:17	25	14.5	4.6	0.0	-	Gas Well
GP-17	10/21/2019	16:19	50	14.2	4.6	0.0	-	Gas Well
GP-17	10/21/2019	16:21	75	14.5	4.2	0.0	-	Gas Well
GP-18	10/21/2019	16:25	25	19.0	1.4	0.0	-	Gas Well
GP-18	10/21/2019	16:27	50	18.9	1.4	0.0	-	Gas Well
GP-18	10/21/2019	16:29	75	18.9	1.4	0.0	-	Gas Well
GP-19	10/22/2019	11:00	25	19.6	1.2	0.0	-	Gas Well
GP-19	10/22/2019	11:02	50	19.6	1.2	0.0	-	Gas Well
GP-19	10/22/2019	11:04	75	19.6	1.2	0.0	-	Gas Well
GP-20	10/21/2019	16:13	105	17.3	1.2	0.0	-	Gas Well
GP-21	10/21/2019	16:31	115	11.4	0.2	0.0	-	Gas Well
GP-22	10/22/2019	10:27	70	19.2	0.0	0.0	-	Gas Well
GP-23	10/22/2019	10:29	100	6.7	2.8	0.0	-	Gas Well
GP-24	10/22/2019	10:00	70	15.1	0.0	0.0	-	Gas Well
GP-25	10/22/2019	10:02	100	15.4	0.2	0.0	-	Gas Well
GP-26	10/22/2019	9:51	70	15.7	3.0	0.0	-	Gas Well
GP-27	10/22/2019	9:53	100	15.1	2.6	0.0	-	Gas Well
GP-28	10/21/2019	15:53	70	17.3	3.0	0.0	-	Gas Well
GP-29	10/21/2019	15:55	100	17.7	0.0	0.0	-	Gas Well
GP-30	10/21/2019	13:47	105	18.7	1.0	0.0	-	Gas Well
Admin Building	10/22/2019	8:31	-	20.9	0.0	0.0	-	Structure
Mod Bldg	10/22/2019	8:40	-	20.9	0.0	0.0	-	Structure
Scale House	10/22/2019	8:34	-	20.9	0.0	0.0	-	Structure
Firing Range	10/21/2019	9:35	-	20.9	0.0	0.0	-	7 Structures
Haz Waste Drop off Center	10/22/2019	8:52	-	20.9	0.0	0.0	-	4 Structures
Storage Building	10/22/2019	8:43	-	20.9	0.0	0.0	-	Structure

**LANDFILL GAS MONITORING RESULTS  
CITRUS COUNTY CENTRAL LANDFILL**

**Fourth Quarter 2019**

**General Data**

Date:	10/21/19 & 10/22/19	Sampler:	Steve Messick
Time:	09:00 on 10/21/19 & 08:30 on 10/22/19	Sky Conditions:	Cloudy, Wind < 3 mph on 10/21/19 & Cloudy - Overcast, Wind < 3 mph on 10/22/19
Air Temperature (deg C):	22° on 10/21/19 & 26° on 10/22/19	Measuring Device:	Eagle RKI (SN E084039)

**Sampling Data**

Station I.D.	Date Sampled	Time Sampled	O2 %Volume	CO2 %Volume	Methane		Station Type
					Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	
MW-1R	10/22/2019	10:14	3.3	22.6	-	6.0	Groundwater Well
MW-2	10/22/2019	11:14	17.8	3.2	1.0	-	Groundwater Well
MW-3	10/22/2019	8:59	6.4	10.4	0.0	-	Groundwater Well
MW-5	10/22/2019	9:36	2.3	24.0	-	6.5	Groundwater Well
MW-6	10/22/2019	9:30	2.3	34.6	-	63.0	Groundwater Well
MW-7	10/22/2019	9:07	1.6	39.8	-	61.0	Groundwater Well
MW-8R	10/21/2019	9:21	15.3	9.2	0.0	-	Groundwater Well
MW-9	10/21/2019	9:14	20.9	0.0	0.0	-	Groundwater Well
MW-10	10/21/2019	10:30	9.5	18.8	0.0	-	Groundwater Well
MW-11	10/21/2019	10:47	21.0	0.8	0.0	-	Groundwater Well
MW-12	10/21/2019	10:59	11.5	6.2	0.0	-	Groundwater Well
MW-13	10/21/2019	11:11	18.5	2.4	0.0	-	Groundwater Well
MW-14	10/21/2019	11:17	20.9	0.2	0.0	-	Groundwater Well
MW-15	10/21/2019	11:24	1.8	19.0	98.0	-	Groundwater Well
MW-16	10/22/2019	9:21	2.0	34.6	-	63.5	Groundwater Well
MW-17	10/21/2019	11:31	1.7	18.6	99.0	-	Groundwater Well
MW-18	10/21/2019	10:20	14.2	4.8	0.0	-	Groundwater Well
MW-18D	10/21/2019	10:23	16.5	3.6	0.0	-	Groundwater Well
MW-19	10/21/2019	10:34	9.6	18.6	0.0	-	Groundwater Well
MW-19D	10/21/2019	10:38	18.0	2.2	0.0	-	Groundwater Well
MW-20	10/22/2019	9:15	2.6	36.6	-	47.5	Groundwater Well
MW-21	10/21/2019	9:53	2.0	19.4	80.0	-	Groundwater Well
MW-22	10/21/2019	10:01	1.7	19.6	81.0	-	Groundwater Well
MW-AA	10/21/2019	11:05	13.1	4.8	0.0	-	Groundwater Well
MW-B	10/21/2019	9:41	15.3	9.4	12.0	-	Groundwater Well
MW-E	10/21/2019	10:53	18.6	1.8	0.0	-	Groundwater Well
PZ-1	10/21/2019	9:05	20.9	0.0	0.0	-	Groundwater Well
PZ-2	10/21/2019	10:13	6.2	7.8	0.0	-	Groundwater Well

Form FD 9000-8: FIELD INSTRUMENT CALIBRATION RECORDS

SITE NAME Citrus Co. Central LF. DATE 10/21/19 & 10/22/19

INSTRUMENT (MAKE/MODEL#) Eagle Multi-Gas Detector INSTRUMENT # GNV 80023\*

Instrument Calibration Date 11/11/16 Reference Meter Book Eagle Meter Book 1

PARAMETER: [check only one]

- TEMPERATURE     CONDUCTIVITY     SALINITY     pH     ORP  
 TURBIDITY     RESIDUAL Cl     DO     OTHER LANDFILL GAS

STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]

Standard A 14.99 % Methane (Volume), 14.95 % CO<sub>2</sub> (Volume), Balance Nitrogen

Standard Source Airgas Lot # 122-401175248-1

Standard B Zero Air (0 % Methane) (0% CO<sub>2</sub>) ( 21.0 % O<sub>2</sub>)

Standard Source Airgas Lot # 55-400483127-1

Standard C % LEL Methane, % CO<sub>2</sub> (Volume), 0% O<sub>2</sub> (Volume), Bal Nitrogen

Standard Source \_\_\_\_\_ Lot # \_\_\_\_\_

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	CH <sub>4</sub> STD VALUE (% Vol)	CO <sub>2</sub> STD VALUE (% Vol)	O <sub>2</sub> STD VALUE (% Vol)	INSTRUMENT RESPONSE (%) DEVIATION (LIMITS +/- 5%)						CALIB- RATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
						CH <sub>4</sub>		CO <sub>2</sub>		O <sub>2</sub>				
						RES	DEV	RES	DEV	RES	DEV			
19/10/21	0852	A	14.99	14.95	—	15.0	<1	15.0	<1	—	—	Yes	Init.	Am
	0855	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Init.	Am
	1135	A	14.99	14.95	—	15.0	<1	15.2	<2	—	—	Yes	Cont.	Am
	1137	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Cont.	Am
	1651	A	14.99	14.95	—	15.0	<1	15.2	<2	—	—	Yes	Cont.	Am
	1655	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Cont.	Am
19/10/22	0823	A	14.99	14.95	—	15.0	<1	15.0	<1	—	—	Yes	Init.	Am
	0824	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Init.	Am
	1120	A	14.99	14.95	—	15.0	<1	15.4	<3	—	—	Yes	Cont.	Am
	1122	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Cont.	Am

\* Eagle SN E084039